



Swaddling: A Historical, Cultural, and Lactational Perspective

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Why I'm doing this talk

- I wasn't breastfed – I was early & breech; mom smoked, got bad advice, had good instincts
- 1st career: physical education & sports
- Found LLL shortly before 1st child's birth
- Advocate for women and babies - healing
- Three children, 4 grandchildren, 13 houses in 9 cities / 2 countries
- MPH candidate – in the home stretch now

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Objectives


- Discuss historic and current beliefs and practices regarding infant swaddling
- Discuss ethical, political and cultural issues related to swaddling
- Discuss research on benefits and harms of infant swaddling





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Questions asked

- Historically, why was swaddling done?
 - What is the current appeal of swaddling?
 - When and where is swaddling combined with cradleboards or cradles?
 - What were common objections to swaddling?
 - What alternatives have been used instead of swaddling for similar purposes?
 - What are the evidence-based benefits to PARENTS? Or STAFF?
- How is swaddling done?
 - What variations exist, and why?
 - How long does the baby remain swaddled? (per session, per day, total in months or years)
 - Who decides when to end swaddling? (per session, per day, total in months or years)
- What are the evidence-based responses of the INFANT to being swaddled?
 - What is the relationship between swaddling and SIDS?
- What is the impact of swaddling on BREASTFEEDING?



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Why are babies swaddled?

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- What is the current appeal of swaddling?
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- What were common objections to swaddling?
- What alternatives have been used instead of swaddling for similar purposes?
- What are the evidence-based benefits to PARENTS? Or STAFF?

Origins: transportation

- Archaeological records suggest that swaddling first developed around 4000 B.C. in Central Asia with use of the back-pack cradle board by migrating peoples
- As desertification progressed, migration from region to region became a relatively permanent way of life



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Origins: warmth & limb growth

- “Swaddling clothes described in the Bible consisted of a cloth tied together by bandage-like strips.
- After an infant was born, the umbilical cord was cut and tied, and then the baby was washed, rubbed with salt and oil, and wrapped with strips of cloth.
- These strips kept the newborn child warm and also ensured that the child’s limbs would grow straight.”



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Beliefs about babies

- Before 1700’s, parents barely raised their children (by our standards) – neglect was rampant
- Infant mortality was high
- Names given to infants were “temporary” until the child reached ~2 years then “really” named
- Upbringing was based on fear



Note the skull next to the baby

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Swaddling was *meant* to bind

- “A child lying stiff in swaddling clothes was unable to wave its hands and feet in the air, incapable of reaching out to grasp some dangled object, forbidden by its bonds to respond to maternal playfulness.
- And if mothers tied their children from head to feet so that they couldn’t respond to tickling, clucking, and cajoling, it must mean the mothers had little interest in such things in the first place.”
- Shorter, Edward. *The Making of the Modern Family*. 1975

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Galen’s advice: toughen the baby

- “The newborn infant, then, free from defect in his entire constitution, should first be powdered moderately and wrapped in swaddling-clothes, in order that his skin may be made thicker and firmer than the parts within.
- For during pregnancy everything was equally soft, since nothing of a harder nature touched it from without, and no cold air came in contact with it, whereby the skin would be contracted and thickened, and would become tougher and denser than it was before and than the other parts of the body.
- But when the baby is born, it is necessarily going to come in contact with cold and heat and with many bodies harder than itself. Therefore it is appropriate that his natural covering should be best prepared by us for exposure.”
- The newborn was also “salted” with soda ash to harden his skin for the strange extraterrestrial life. Swaddling and infant salting after the manner of the Greeks and Romans served as the model of infant care practice for some 1,500 or more years.
 - Green, R.P. A Translation of Galen’s *Hygiene*. Springfield, IL: Charles C. Thomas, 1951.
 - Cited in Lipson, E. L., Spangshneider, A., & Richmond, J. B. (1965). Swaddling, a Child Care Practice: Historical, Cultural, and Experimental Observations. *Pediatrics*, 35(3), 521-567.

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Tudor times: for limb growth

- “During Tudor times, swaddling involved wrapping the new baby in linen bands from head to foot to ensure the baby would grow up without physical deformity.
- A stay band would be attached to the forehead and the shoulders to secure the head.
- Babies would be swaddled like this until about 8 or 9 months.”



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17th century: Assoc. with neglect

- “There was an association of neglect with swaddling, especially in regard to wet-nurses who would leave babies in their care swaddled for long periods without washing or comforting them”
- “All the doctors complain about how parents permit children to stew in their own excrement for hours on end, tightly wound in swaddling clothes; about how children left unattended before the hearth perish when their garments catch fire; and about how unguarded infants would be attacked and eaten by the barnyard hogs.”
 - *The Making of the Modern Family*, Edward Shorter 1975

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Late 18th century: Enlightened parenting

- Swaddling diminished in England & France
 - Replaced by alcohol and opium to sedate infants
- Persisted in Eastern Europe, Middle East, Lapland, Japan, North American Indians
- **More common in cold and/or dry climates**
- **Rare in warm, humid climates (↑ infections)**

– Abdulrazzaq, Y. M., Kandi, A. A., & Nagelkerke, N. (2008). Child care practice in the United Arab Emirates: the ESACCPIS study. *Acta Paediatr*, 97(5), 590-595.

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Contemporary reasons to swaddle

- Russia: prevent self-injury
- Poland: baby might fall apart, or be weak; prevent sucking on own toes or fingers
- Rumania: prevent masturbation; tied hands to crib even when too old to swaddle
- Ukraine, Poland: warmth and comfort
- Italy, Albania, Greece, Slovakia: prevent self-injury

– Lipton, E. L., Steinschneider, A., & Richmond, J. B. (1965). Swaddling, a Child Care Practice: Historical, Cultural, and Experimental Observations *Pediatrics*, 35(2), 321-347.

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1693: John Locke objects

- “John Locke, in his 1693 publication *Some Thoughts Concerning Education*, became a lobbyist for not binding babies at all.
- This thought was very controversial during the time, but slowly gained ground, first in England and later elsewhere in Europe.”

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1747: William Cadogan, MD

- Protested over-dressing of infants in many layers of tight swaddling blankets
- “The mother who has only a few rags to cover her child loosely, and little more than her own breast to feed it, sees it healthy and strong, and very soon able to shift for itself; while the puny insect, the heir and hope of a rich family, lies languishing under a load of finery that overpowers his limbs, abhorring and rejecting the dainties he is crammed with, till he dies a victim to the mistaken care and tenderness of his fond Mother.”
- “...besides the mischief arising from the weight and heat of these swaddling-cloaths, they are put on so tight, and the Child is so cramped by them, that its bowels have not room, nor the limbs any liberty, to act and exert themselves in the free easy manner they ought.”

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1762: Rosseau *Emile: Or, On Education*

- Warned against swaddling clothes
- Claimed the newborn baby needs freedom of movement
- Said infants who were not restrained became stronger and developed better bodily proportions

■ Rosseau, Jean-Jacque. *Emile: Or, On Education*. 1762.

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1762: Rosseau *Emile: Or, On Education*

- “The child has hardly left the mother’s womb, it has hardly begun to move and stretch its limbs, when it is given new bonds. It is wrapped in swaddling bands, laid down with its head fixed, its legs stretched out, and its arms by its sides; it is wound round with linen and bandages of all sorts so that it cannot move [...]”
- Whence comes this unreasonable custom? From an unnatural practice. Since mothers despise their primary duty and do not wish to nurse their own children, they have had to entrust them to mercenary women. These women thus become mothers to a stranger’s children, who by nature mean so little to them that they seek only to spare themselves trouble.
- A child unswaddled would need constant watching; well swaddled it is cast into a corner and its cries are ignored [...]. It is claimed that infants left free would assume faulty positions and make movements which might injure the proper development of their limbs.
- This is one of the vain rationalizations of our false wisdom which experience has never confirmed. Out of the multitude of children who grow up with the full use of their limbs among nations wiser than ourselves, you never find one who hurts himself or maims himself; their movements are too feeble to be dangerous, and when they assume an injurious position, pain warns them to change it.

– Rosseau, Jean-Jacque. *Emile: Or, On Education*. 1762.

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1971: Prevalence


- 139 societies studied by Barry & Paxson
 - 51.8% practiced some form of infant restraint
 - 20.9% used cradleboards
- 19th and 20th century: drugs to pacify infants
 - Paregoric (Brand name: Camphorated Tincture of Opium)
 - Alcohol
 - Gripe water
 - Antihistamines and childrens' cold medicines

■ Barry, H. C., & Paxson, L. M. (1971). Infancy and Early Childhood: Cross-cultural Codes 2. Ethnology, 10, 466-508
 ■ Chisholm, J. S. (1978). Swaddling, cradleboards and the development of children. Early Hum Dev, 2(3), 255-275.

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Cradleboards – North America

- Navajo, Cree, Ojibway, Shoshone, others
- “They were made for discipline, we would wrap the baby really tight, by doing so, and he learned not to cry so much”
 - Merle Lopez, Cheyenne bead worker, El Reno, Oklahoma
- “It was common practice to cradleboard newborn children until they were able to walk, although many mothers continued to swaddle their children well past their first birthday.”



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www.nativecradleboards.com/

- “Natives believe the flat boards will give a baby a strong, straight back, and that a soft supporting pad will help the infant form a nice rounded head. The Cradleboard is smudged with prayers, songs and good thoughts for the baby.”






Lacing the moss bag before attaching it to the Cree tikkanaagan (cradle board)

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Sandbag babies – rural China

- April 08, 1990 |By Cox News Service
- BEIJING — The practice is horrifying - but only to outsiders. Millions of babies along the Yellow River are tied up in bags of sand, only their heads peeping out, and left completely alone for most of each day.
- A major reason the babies are kept in the sandbags, red sacks similar to flour bags, is to enable both parents to go out and work in the fields without having to worry about the infants. The family returns at midday to eat and the mother nurses the baby, still in the sandbag.
- Otherwise, it is left alone from morning to evening. When the parents are at home the baby usually is taken out of the sandbag only when the sand is changed. When the baby is 1 to 1 1/2 years old the parents start taking it to the fields while they work.

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Research on effects of swaddling

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Effects of swaddling on adults

- Who is willing to BE swaddled?
- Get a scarf/shawl and caregiver(s)
 - Swaddlee: put arms down at sides
 - Caregiver: wrap shawl snugly around her body, tie in back, stay nearby
- Swaddlee: notice YOUR feelings
- Stay swaddled like this for 15 minutes or until...

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Maintain warmth?

- Swaddled VLBW babies in incubators were warmer than non-swaddled (no STS)
 - Short MA. A comparison of temperature in VLBW infants swaddled versus unwaddled in a double-walled incubator in skin control mode. *Neonatal Netw. Apr 1998;17(3):25-31.*
- "...can be helpful in regulating temperature but can also cause hyperthermia when misapplied"
 - van Sleuwen BE, Engelberts AC, Boere-Boonekamp MM, Kuis W, Schulpen TW, L'Hoir MP. Swaddling: a systematic review. *Pediatrics. Oct 2007;120(4):e1097-1106.*

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van Gestel, J. P., M. P. L'Hoir, et al. (2002). "Risks of ancient practices in modern times." *Pediatrics 110(6): e78.*

- Swaddling, ie, wrapping the child to restrict movement, is an ancient practice. In the Netherlands, it is becoming increasingly popular as an intervention for excessive crying in infants. However, one must be well aware of the potential risks.
- We present the case reports of a twin boy and girl who had been swaddled and kept in a heated room for several days.
- On admission to the hospital, both infants suffered from severe hypovolemic shock, hyperthermia, and secondary respiratory insufficiency.
- The girl developed multiple organ dysfunction syndrome and died, whereas the boy had an uneventful recovery.
- When swaddling is being considered as an intervention for excessive crying in infants, parents have to be well-informed about the possible side effects and about additional measures that they may have to take to make it a safe intervention.

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Breastfeeding is more effective

- Christensson, K., Siles, C., Moreno, L., Belaustequi, A., De La Fuente, P., Lagercrantz, H., et al. (1992). Temperature, metabolic adaptation and crying in healthy full-term newborns cared for skin-to-skin or in a cot. *Acta Paediatr, 81(6-7), 488-493.*
- Kimura, C., & Matsuoka, M. (2007). Changes in breast skin temperature during the course of breastfeeding. *J Hum Lact, 23(1), 60-69.*
- Lawn, J. E., Mwansa-Kambafwile, J., Horta, B. L., Barros, F. C., & Cousens, S. (2010). 'Kangaroo mother care' to prevent neonatal deaths due to preterm birth complications. *Int. J. Epidemiol, 39(suppl_1), i144-154.*
- And many more

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Reduce pain?

- As effective as containment during heel stick
 - Huang CM, Tung WS, Kuo LL, Ying-Ju C. Comparison of pain responses premature infants to the heelstick between containment and swaddling. *J Nurs Res. Mar 2004;12(1):31-40.*
- Less effective than pacifiers after heel stick
 - "Swaddling was not a rapid soother of pain-elicited distress, it was not followed by reduction of crying nor return of HR to base levels at 2 weeks of age, and it did not result in complete cessation of crying at 2 months."
 - Campos RG. Soothing pain-elicited distress in infants with swaddling and pacifiers. *Child Dev. Aug 1989;60(4):781-792.*



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Breastfeeding is more effective

- Shah, P. S., Aliwalas, L. I., & Shah, V. (2006). Breastfeeding or breast milk for procedural pain in neonates. *Cochrane Database Syst Rev, 3, CD004950.*
- Carbajal, R., Veerapen, S., Couderc, S., Jugie, M., & Ville, Y. (2003). Analgesic effect of breast feeding in term neonates: randomized controlled trial. *BMJ, 326(7379), 13.*
- Gray, L., Miller, L. W., Philipp, B. L., & Blass, E. M. (2002). Breastfeeding is analgesic in healthy newborns. *Pediatrics, 109(4), 590-593.*
- Gray, L., Watt, L., & Blass, E. M. (2000). Skin-to-skin contact is analgesic in healthy newborns. *Pediatrics, 105(1), e14.*
- And many more...

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Reduce "excess crying?"

- "For older babies, swaddling did not bring any benefit when added to regularity and stimuli reduction in baby care, although swaddling was a beneficial supplementation in excessively crying infants <8 weeks of age."
- van Sleuwen, B. E., L'Hoir M. P., Engelberts, A. C., Buschers, W. B., Westers, P., Blom, M. A., et al. (2006). Comparison of behavior modification with and without swaddling as interventions for excessive crying. *J Pediatr, 149(4), 512-517.*

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What exactly IS “excess crying?”

- “Often, excessively crying infants are not used to falling asleep on their own. These infants need an opportunity to learn this and may need to cry themselves to sleep for 15 to 30 minutes.
- Some infants persist in crying for more than 30 minutes, and for these babies it is suggested that the parents offer some consolation without taking the child out of the bedroom.
- If an infant remains inconsolable, parents should begin again the cycle described previously (i.e. take the infant out of bed, feed them, and so forth).
- When this approach is used, the child soon recognizes that being picked up out of bed is followed by being fed, and being put into bed is followed by going to sleep.
- Within this regular pattern, the infant is fed shortly after waking up, since a well-rested infant drinks adequately and a well-fed infant is able to play on their own contentedly until they become tired.
 - Blom, M. A., van Sleuwen, B. E., de Vries, H., Engelberts, A. C., & L’Hoir M. P. (2009). Health care interventions for excessive crying in infants: regularity with and without swaddling. *J Child Health Care, 13*(2), 161-176.

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Blom, M. A., van Sleuwen, B. E., de Vries, H., Engelberts, A. C., & L’Hoir M. P. (2009). Health care interventions for excessive crying in infants: regularity with and without swaddling. *J Child Health Care, 13*(2), 161-176.

- Regularity in the sequence of events offers the infant predictability.
 - When the child wakes up, after changing the diaper they are fed right away, because a well-rested infant drinks adequately.
 - After feeding, it is natural to cuddle and play with the infant, after which the infant (if more than four to six weeks old) plays on their own in a fixed place until they become tired.
 - Upon the first signs of weariness, the infant should be put to bed while still awake. Intervals between daytime feeds are preferably two to four hours.
- Further advice to help the child to fall asleep on their own
 - Offer a substantial boundary by tightly tucking the baby in with a sheet and blanket (never a duvet), up to the chin, while on their back and with the feet reaching the footboard.
 - During the first one to two days parents need to accept that an infant may cry for about 15 to 30 minutes before falling asleep.

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STS and BF are more effective

- “Babies kept in cots cried significantly more than those kept skin-to-skin with the mother.
- Keeping the baby skin-to-skin with the mother preserves energy and accelerates metabolic adaptation and may increase the well-being of the newborn.”
- Christensson, K., Siles, C., Moreno, L., Belauzequi, A., De La Fuente, P., Lagercrantz, H., et al. (1992). Temperature, metabolic adaptation and crying in healthy full-term newborns cared for skin-to-skin or in a cot. *Acta Paediatr, 81*(6-7), 488-493.



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Reduces arousal? ☺ or ☹?

- “In both experiments the infant groups clearly slept more when swaddled and also showed fewer motor responses to the air stream stimulus. This decrease in motor responsivity occurred at all levels of prestimulus heart rate and was not simply a reflection of increased sleep when swaddled. Furthermore, in both studies there were more startle responses in the free condition.” (N = 8 female formula-fed infants 2-5 days old)
 - Lipton, E. L., Steinschneider, A., & Richmond, J. B. (1965). Swaddling, a Child Care Practice: Historical, Cultural, and Experimental Observations *Pediatrics, 35*(3), 521-567.
- “Swaddling has a significant inhibitory effect on progression of arousals from brainstem to full arousals involving the cortex in QS. Swaddling decreases spontaneous arousals in QS and increases the duration of REM sleep, perhaps by helping infants return to sleep spontaneously, which may limit parental intervention.” (n=26 male & female infants, 24-180 days. Feeding method not stated)
 - Gerard, C. M., Harris, K. A., & Thach, B. T. (2002). Spontaneous arousals in supine infants while swaddled and unswaddled during rapid eye movement and quiet sleep. *Pediatrics, 110*(6), e70.

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Reduced arousal = ↑SIDS risk

- “Breast fed infants are more easily aroused from AS at 2-3 months of age than formula fed infants. This age coincides with the peak incidence of SIDS.”
 - Horne, R. S., Parslow, P. M., Ferens, D., Watts, A. M., & Adamson, T. M. (2004). Comparison of evoked arousability in breast and formula fed infants. *Arch Dis Child, 89*(1), 22-25.
- “Infants in the naive to swaddling group exhibited decreased spontaneous cortical arousal, similar to responses observed in future victims of sudden infant death syndrome.” (27 breastfed male & female infants @ 3-4 weeks & 3 mos.)
 - Richardson, H. L., Walker, A. M., & R. S. C. H. (2010). Influence of Swaddling Experience on Spontaneous Arousal Patterns and Autonomic Control in Sleeping Infants. *J Pediatr.*

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Independent risk factor for SIDS

- Infant swaddled for last sleep: 24% of cases, 6% of controls; odds ratio 31.06 (range 4.21 to 228.94); P= .0001
 - Blair, P. S., Sidebotham, P., Evason-Coombe, C., Edmonds, M., Heckstall-Smith, E. M., & Fleming, P. (2009). Hazardous cosleeping environments and risk factors amenable to change: case-control study of SIDS in south west England. *BMJ, 339*, b3666.


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Breastfeeding is safer

- “overall risk of SIDS twice as great for formula-fed infants compared with breastfed infants”
 - Ip, S., Chung, M., Raman, G., Chew, P., Magula, N., DeVine, D., et al. (2007). *Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries* (No. AHRQ Publication # 07-E007). Rockville: Agency for Healthcare Research and Quality.
- “This study shows that breastfeeding reduced the risk of sudden infant death syndrome by approximately 50% at all ages throughout infancy.”
 - Vennemann, M. M., Bajonowski, T., Brinkmann, B., Jorch, G., Yucesan, K., Sauerland, C., et al. (2009). Does breastfeeding reduce the risk of sudden infant death syndrome? *Pediatrics*, 123(3), e406-410.



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Accept supine sleep?

- “The majority of infants accepted swaddling while supine, including 78% of infants who slept prone at home. Acceptance decreased with increasing age.
- “Older infants including usual prone sleepers generally accept a form of swaddling that has minimal respiratory effects. The reintroduction of swaddling, without restricting hip movement or chest wall excursion, combined with supine sleeping, may promote further sudden infant death syndrome reduction.”
 - Gerard, C. M., Harris, K. A., & Thach, B. T. (2002). Physiologic studies on swaddling: an ancient child care practice, which may promote the supine position for infant sleep. *J Pediatr*, 141(3), 398-403.

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Reduce Prone Sleep = (↓SIDS)

- “...swaddling may be protective for back-sleeping infants by preventing them from moving into dangerous situations (such as rolling to prone) but harmful for those who sleep on their stomach, restricting a prone infant from moving to a position of safety.
- Spontaneous turning to the prone position from a supine or side position during sleep is associated with an increased risk for SIDS.
- Immobilization of infant arms and legs by swaddling should reduce the chances that an infant will cover his head and face with bedding, a well-established risk factor for SIDS in which overheating and asphyxia maybe causal factors.”
 - Gerard, C. M., Harris, K. A., & Thach, B. T. (2002). Spontaneous arousals in supine infants while swaddled and unswaddled during rapid eye movement and quiet sleep. *Pediatrics*, 110(6), e70.

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Breastfeeding works better

- “without instruction, the routinely bedsharing breast feeding mothers almost always placed their infants in the safe supine infant sleep position, probably because it is difficult, if not impossible, to breastfeed a prone sleeping infant”
 - McKenna, J. J., & McDade, T. (2005). Why babies should never sleep alone: a review of the co-sleeping controversy in relation to SIDS, bedsharing and breast feeding. *Paediatric Respir Rev*, 6(2), 134-45. Linda J. Smith / BFLRC



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Risk: Neonatal weight loss

- “...swaddled babies who had experienced a 2-h separation period after birth and then were reunited with their mothers tended to have a delayed recovery of weight loss compared to those infants who were exposed to the same treatment but dressed in clothes.
- Furthermore, swaddled babies who were kept in the nursery and received breast-milk supplements had a significantly delayed recovery of weight loss after birth when compared to those infants ingesting only breast-milk.
- On day 5, regression analyses of predicted weight gain in the exclusively breastfed infants indicated a significant increase per 100 ml breast-milk (59 g), compared to the predicted weight gain on day 5 per 100 ml supplements in the swaddled babies (14 g) (P=0.001)”
 - Bystrova, K., Matthiesen, A. S., Widsstrom, A. M., Ransjo-Arvidson, A. B., Welles-Nyström, B., Vorontsov, I., et al. (2007). The effect of Russian Maternity Home routines on breastfeeding and neonatal weight loss with special reference to swaddling. *Early Hum Dev*, 83(1), 29-39.

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Risk: Hip dysplasia

- Although we appreciate that swaddling may sometimes be an effective technique to decrease crying and promote sleep in newborns, there is concern that it may lead to an increase in hip dysplasia. ...swaddling has been found to be a risk factor for DDH.
- “Prospective studies have shown that 17% of newborns have some degree of “immaturity” or dysplasia of their hips according to ultrasound. Although this resolves untreated in most hips by 2 to 3 months of age, the hips are very susceptible to improper positioning that could lead to long-term dysplasia and early arthritis. This overlapping window of time in which infants are swaddled and their hips are susceptible to positioning is a potential concern.”
 - Mahan, S. T., & Kasser, J. R. (2008). Does Swaddling Influence Developmental Dysplasia of the Hip? *Pediatrics*, 121(1), 177-178.
 - Mahan, S. T., & Kasser, J. R. (2008). Safe Swaddling and Healthy Hips: Don't Toss the Baby out With the Bathwater: In Reply. *Pediatrics*, 121(5), 1077-a.

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Risk: Chest/respiratory restriction

- “The incidence of pneumonia and upper respiratory infections (URI) was assessed by retrospective chart review in hospitalized Turkish infants. They found that infants who were completely swaddled for 3 months had a 4-fold increased incidence of pneumonia and URI. Tight binding could restrict chest wall excursion, resulting in more frequent or complicated pneumonia.
- We do not have comparison data on unwaddled infants.
- Long-term studies, including overnight sleep studies of swaddled infants and respiratory effects, would be beneficial, since grunting and increased respirations did appear at higher pressures.”
 - Gerard, C. M., Harris, K. A., & Thach, B. T. (2002). Physiologic studies on swaddling: an ancient child care practice, which may promote the supine position for infant sleep. *J Pediatr*, 141(3), 398-403.

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“Mothers and babies form an inseparable biological and social unit; the health and nutrition of one group cannot be divorced from the health and nutrition of the other.”

WHO, & UNICEF (2003). Global strategy for infant and young child feeding.

Touch and Proximal Care

- Babies need to be touched – a LOT
- Separating babies increases stress in both mother and baby
- “Proximal care parents held infants for 15 to 16 hours per 24 hours and coslept with them through the night more often than other groups...Infant demand care, as practiced by proximal care ...is associated with less overall crying per 24 hours in the early weeks.”
 - St James-Roberts, I., Alvarez, M., Csiplko, E., Abramsky, T., Goodwin, J., & Sorgenfrei, E. (2006). Infant crying and sleeping in London, Copenhagen and when parents adopt a "proximal" form of care. *Pediatrics*, 117(6), e1146-1155.

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Do the “5 S’s” actually work?

- “One method for calming infants, referred to as The Happiest Baby (THB) method, is based on the hypothesis that actions mimicking conditions in the womb will trigger a calming reflex”
- “The behavioral intervention, when provided via videotape, does not seem to be efficacious in decreasing total crying among normal infants.”
 - McRury, J. M., & Zolotor, A. J. (2010). A Randomized, Controlled Trial of a Behavioral Intervention to Reduce Crying among Infants. *J Am Board Fam Med*, 23(3), 315-322.

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Why swaddle at all?

- “Breastfeeding to comfort a crying infant is a strong predictor of partial (overall) duration and is rated as a highly effective calming method by parents.”
 - Howard, C. R., Lanphear, N., Lanphear, B. P., Eberly, S., & Lawrence, R. A. (2006). Parental responses to infant crying and colic: the effect on breastfeeding duration. *Breastfeed Med*, 1(3), 146-155.



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Breastfeeding works better!

- TOUCHING is vital to babies
- Soothes pain (mom, breastfeeding, milk)
- Accepts supine sleep next to BF mother
- Normal respiratory function esp. in STS
- ↓ crying if nursed to sleep
- ↓ colic with exclusive breastfeeding
- ↑ arousal protects against SIDS

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Routine vs. last-resort strategy?

- “Advice for routine care of healthy babies must have as strong an evidence base as for babies who are ill, since healthy babies are far more common and the potential for unsuspected harm is relatively great – a lesson bitterly learned for infant sleeping position.”
– Peter Fleming

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Summary

- Swaddling was used for transportation, bone development, reduced arousal, suppression of crying, warmth, restriction of movement
- Swaddling has documented risks
- Swaddling is an independent risk factor for SIDS
 - Overheating, reduced arousal
- Swaddling deprives baby of skin / human contact

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